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DISCUSSION AND CORRESPONDENCE

THE REFORM OF THE CALENDAR

TO THE EDITOR OF SCIENCE: The brief article in the July 29 number of SCIENCE by Professor Reininghaus on reform of the calendar is opportune, and it is hoped that action will soon be taken for the appointment of an international committee who will give us a calendar well shorn of the many disadvantages of the present one.

In the year 1899 Moses B. Cotsworth, of York, England, had in type the main propositions for, and in 1902 he published in full, "The Rational Almanac" in a narrow octavo volume of 471 pages. This is an interesting and worthy book. In brief, its propositions are as follows:

Without disturbing the commonly accepted Gregorian Calendar or lengths of years, the advantages of the proposed permanent almanac could be realized by three simple steps, viz:

1. From Christmas Day, 1916, cease naming this day by any week-day name, and merely call it Christmas Day, which could thus be set apart as the extra Sunday to permanently combine the week-end holiday with Christmas, thus getting rid of the troublesome and unbusiness-like changing of week-day names for dates throughout future years. By naming Leap-year Day Leap Day, and as a public holiday without any week-day name, justice would be done to salaried servants, whilst maintaining fixed day names for each date.

2. Let Easter, Whitsuntide and other movable festivals be fixed (as Christmas is) to always fall on the fixed dates to be arranged for the year 1916 that will best suit the convenience, welfare and pleasure of the people. Easter could thus be permanently fixed in May as one of our longest open-air public holidays.

3. Divide the fifty-two weeks of the year into thirteen months of four weeks each, by inserting a mid-summer month to be called Sol.

Please give us an editorial on this subject,

and the desirability of an international committee.

CHARLES E. SLOCUM

DEFIANCE, OHIO

OCCURRENCE OF MISTLETOE (*PHORADENDRON FLAVESCENS*) ON *PRUNUS SIMONI*

THE writer recently found a number of Simoni plums at Newcastle, Cal., seriously parasitized by the yellow mistletoe, *Phoradendron flavescens* Nutt., which had infested the bodies and framework of these trees in much the same way as it is known to attack the buckeye (*Æsculus californica*). It was found that the mistletoe reproduced vegetatively, the haustoria spreading in the bark and giving rise, by buds, to numerous plants which produced a very twiggy appearance.

It is probable that the parasitism of this species of mistletoe on *Prunus simoni* has been previously reported, but the writer has not seen any reference to it.

P. J. O'GARA

U. S. DEPARTMENT OF AGRICULTURE

SCIENTIFIC BOOKS

The Volcanoes of Kilauea and Mauna Loa on the Island of Hawaii; their variously recorded history to the present time. By WILLIAM T. BRIGHAM, A.M., Sc.D. (Columbia). From the Memoirs of the Bernice Pauahi Bishop Museum, Vol. II., No. 4, 4to, pp. vii + 222, 143 illustrations in the text; pls. XL.-LXVII. Honolulu, H. I., Bishop Museum Press. 1909.

In 1866 Mr. Brigham published in the quarto memoirs of the Boston Society of Natural History, Vol. I., parts 3 and 4, "Notes on the Volcanoes of the Hawaiian Islands," and in 1869 in the same memoirs, "Notes on the Eruption of the Hawaiian Volcanoes, 1868," amounting to 156 pages, 5 plates and 50 wood cuts. The present volume is a reprint of the "Notes" with certain omissions, emendations and additions, continuing the history to 1909, based upon original observations and the opinions of various visitors, written in the record books of the Volcano House. It is defined as a "connected story of the activities of the Hawaiian volcanoes in historic times" as free

as possible from tentative theorizing. "A collection of material for other geologists to use in elucidating, as far as it may serve, those deeper problems often touched upon but as yet unsolved—the source of volcanic heat, the cause of the rise and outflow or ejection of the matter usually classed as volcanic—on these geology has no positive knowledge." A very few pages are descriptive of the general characters of the lavas, including stalactites and stalagmites. Among the few analyses reprinted are some from the Wilkes report, which Dana took special pains to repudiate. The principal topics touched upon in the "Notes" and omitted in the later volume are the sketches of the geology of the other islands of the archipelago, theoretical formation of the Hawaiian group, lava as a formative agent, the formation of pit-craters, erosion, the place of the Hawaiian volcanoes in volcanic systems, theories of volcanic action, the minerals of Hawaii and a chronological list of the known eruptions.

The failure to present a chronological list of the eruptions for each volcano seriously diminishes the value of the history, especially as the accounts of Mauna Loa are not separated from those of Kilauea, as was done in the "Notes." It is impossible to learn whether the activities of 1849, 1855 and 1879 in Kilauea were to be regarded as true eruptions, and an opinion on this point would be a great help. We are left, therefore, to estimate the value of the several disconnected statements, each by itself.

The general history of Kilauea is simple. Melted lava accumulates in the lower pit, rises gradually till the highest level that can be supported is attained. Then there is a collapse, the liquid disappears, whether to flow out of an opening on the flank of the mountain, or to sink into the earth, sometimes being discharged at the bottom of the sea. After that the process of accumulation recommences. Since 1820 there have been fifteen of these collapses or breakdowns, of which the most spectacular was manifested in 1894. The lava lake attained the height of 3,755 feet above the sea, or 282 feet below the Volcano House, with

an area of 13.37 acres, and occupied the summit of the ascensive column, being kept in place by the cooled edges, presenting the appearance of an inverted saucer. This was the supreme moment in the history of the caldera and should have been commented upon. Instead of this, Dr. Brigham copied the error of Mr. F. S. Dodge, affirming the altitude to have been 207 feet greater than its actual level. Only a glance at the figure is needed (p. 186) to discover that the datum line of 282 feet was put in the wrong place, and the slip is comparable with a misprint in correcting proof. Mr. Dodge has corrected the misstatement in the record book, but not before it had been quoted by Dr. Brigham, L. A. Thurston, S. E. Bishop, W. H. Pickering and others. It is to be presumed that no one will be more annoyed than the author himself when he discovers the error, and the importance of having the exact figure stated for the highest known lake of fire in Kilauea.

The information about the eruption of 1832 from Kilauea is obtained from Rev. J. Goodrich. An abstract of his statement is presented between quotation marks, and Mr. Goodrich is thus made responsible for the use of two words which he did not employ. The first is *Kilauea iki* and the second is *Halemaumau*. When quoted in 1865 the term *Poli o Keawe* was employed instead of *Kilauea iki*. Even if some should think it justifiable to put quotation marks upon an abstract, where is the propriety of quoting one geographical term in 1865 and replacing it by another in 1909?

The illustrations of the book are its particular feature. These have been carefully selected and well printed. One hundred and forty-three are printed with the text and vary in size. Many of these relate to the early history, are correctly copied from the original drawings or engravings, and can be usefully employed in making restorations of the true dimensions. Twenty-eight illustrations are of full size in the book, measuring 9.5 by 12 inches. The chef d'œuvre is the frontispiece, *Halemaumau* in 1880, presented in bright colors after a painting by C. Furneaux.

The value of these plates would have been much greater if they could have been arranged in chronological order and properly labeled. Twelve of the plates have no date upon them and even an expert can not be sure to what period in the history some of them belong. Plate LXIV. is said to represent the source of the flow of 1880-81; but it was taken from near the head of the flow of 1887.

In utilizing the records of these volcanoes attention must be paid to the personal equation. Because the events happened so long since we hardly consider the relations of the two early explorers, Admiral Wilkes and Professor Dana. The former wished to write the history himself and hence directed that the latter should attend to business elsewhere, although he was the official geologist of the expedition. With a keen sense of the injustice done him, Dana would not fail to mention the weak points in the writing of his superior. Wilkes had Vesuvius in mind, evidently, when he spoke of the action as "a sea of molten lava, rolling to and fro its fiery surge and flaming billows." Dana saw only a feeble but constant agitation, like that of a caldron in ebullition, whence came his classification of volcanoes erupting violently and peacefully. The ascription of the Hawaiian volcanoes exclusively to the quiet class originated in his criticism of Wilkes; and he was himself forced to admit later that the eruption of 1790 was truly explosive, such as had not been observed since, and consequently that both styles of discharge may be manifested in the same volcano.

An apparent neglect of Dana's work appears in Captain Dutton's report. Naturally the former felt slighted and failed to acknowledge some important suggestions of the latter, such as the use of the term caldera for those volcanoes in which the quiet action predominates. I happen to know that this apparent neglect arose entirely from the inconvenience of obtaining for reference a copy of the geology of the exploring expedition.

Dr. Brigham illustrates the personal equation in his selection of observers whose state-

ments meet his approval. Dutton is not quoted because the reader can consult his report. From Dr. Titus Coan much material is obtained, though he rightly rejects the theory that the lava streams from Kilauea and Mauna Loa united to cause the Kau earthquakes and the Kahuku eruption of 1868. Miss Bird's descriptions are accepted only because they agree with those of W. L. Green. He is indifferent to Miss Gordon Cumming who acknowledges her indebtedness to him in her "Fire Fountains." There are no allusions to H. B. Guppy, W. H. Pickering and A. B. Lyons.

Every one will approve of Dr. Brigham's recommendation that a permanent scientific observatory be established at Kilauea where notes may be taken with the best instruments, of earthquakes, the diurnal changes of level of the dome of Halemaumau, the temperatures of the molten lava and steam jets, the analysis of the ejecta and spectroscopic observations. No organization can more fittingly attempt such an establishment than the trustees of the Bishop Estate, who sustain the museum of which Dr. Brigham is director.

C. H. HITCHCOCK

Die Polarwelt und ihre Nachbarländer. Von OTTO NORDENSKJÖLD. Mit 77 Abbildungen im Text und einem Farbigen Titelbild. Leipzig und Berlin, Druck und Verlag von B. G. Teubner. 1909.

Most books about the polar regions are either accounts of explorations, histories of discoveries, or scientific monographs. This recent work of Dr. Nordenskjöld falls into neither of these categories. It is rather a physical geography, describing in a general way the chief characteristics of the polar and semi-polar regions, especial emphasis being laid on glaciology and climatology. It has, however, a personal quality rare in such works, because Dr. Nordenskjöld has traveled and explored both in the Arctic and the Antarctic, and his comparisons and descriptions are therefore often those of an eye-witness of the phenomena he speaks of, and not merely facts culled from the works of other writers. "Die